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ABSTRACT

Graduate study is a complex enterprise. It is both a legacy of the past and a mixture of novel developments and potentialities for the present and future. One major focus of concern is the problem of PhD's who are either without jobs or underemployed. Declining priorities for research and declining undergraduate enrollment mean limited opportunities for young PhD's to teach, perform research, and enter onto a tenure track. However, graduate study is being invigorated by discussion and awareness of the new clientele it must accommodate: professionals and graduate study returnees, women, and minority groups. An awareness that society may no longer wish to pay for duplicate efforts in graduate sutdy has provoked questions about its quality. Similarly, the possibilities for nontraditional graduate study are being explored. The graduate student experience is an area that has only recently gained in interest, but research in this area is increasing. (MSE)

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1977

Graduate Education in the 1970's

David A. Trivett

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David A. Trivett

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Foreword

While undergraduate higher education based on the English college model has been part of the American scene from the very beginning, the development of graduate study based on the German university model developed only a little more than 100 years ago. The basic educational philosophy and teaching approaches of these two levels of education were very distinctive. The purpose of undergraduate education was to drill and convey knowledge; the purpose of graduate study was to develop mature scholars and professional men and to provide a workshop for theoretical scientific research. The educational philosophy of *Lernfreiheit* (freedom of learning) and *Lehrfreiheit* (freedom of teaching) in graduate study—where the students were permitted to take courses of their choice and the professors were free to investigate any and all problems in pursuit of their research—was a sharp contrast to the rigid structure of the undergraduate college.

As graduate education evolved, several characteristics in addition to the general educational philosophy also made it distinctive from undergraduate education: the major source of employment for the graduate was the university itself; the major activity of the graduate faculty was not teaching but research; and because of the low student faculty ratio, the cost per student was much higher. As higher education today attempts to adjust to the well articulated problems of high costs, declining enrollment rates, and decreasing support for research, graduate study is faced with the dilemma of maintaining its original purpose while adjusting to economic realities.

David A. Trivett, a research associate at the ERIC Clearinghouse on Higher Education, addresses this dilemma in this research report. His systemic review of the current problems and conditions facing graduate study and the graduate schools' responses greatly helps to clarify the current status of graduate study and will help to stimulate further discussion and the search for alternative solutions.

Jonathan D. Fife, Director
ERIC Clearinghouse on
Higher Education

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Overview

Graduate study is a complex enterprise; it is both a legacy of the past and a mixture of novel developments and potentialities for the present and future. A university's fabric of program offerings leading to a master's or doctoral degree is interwoven with societal values and priorities, with the nature of research and disciplined inquiry, with the character of undergraduate study, and with manpower needs and the labor market. The health of graduate study is related to the supply of people and students depicted in demographic trends. Many of the dilemmas facing graduate study can be traced to its responsiveness to past societal needs, a responsiveness that left many institutions without support when those needs changed. For example, when federal research priorities changed, much subsidization of the graduate enterprise disappeared.

One major focus of concern about graduate study is the problem of Ph.D.'s who are either without jobs or underemployed. If large numbers of 18 to 24 year olds suddenly matriculated at undergraduate colleges, much of the Ph.D. unemployment problem would disappear; that is, the attractiveness of undergraduate education as a social institution influences the job market for Ph.D.'s who are products of graduate study. The Ph.D. job problem is also related to the function of graduate schools as homes for the producers of knowledge. The expansion of graduate study in another era left a residue of now-tenured faculty members. As a consequence, declining priorities for research means extremely limited opportunities for young Ph.D.'s to teach, perform research, and to be professors at the start of a tenure track. This becomes a professional and social problem because a lack of research opportunities for young scholars could retard the expansion of knowledge.

Thus, the specters that haunt the present state of graduate study are the products of changing social and governmental priorities, of changing demography in the population, and of systemic effects on an enterprise constructed during a period of rapid growth now faced by a declining rate of growth.

What then are the new opportunities? Graduate study is being invigorated by discussion and awareness of the new clientele it must accommodate more graciously than it has in the past. There is an awareness of the potential interest of entirely new groups of students

such as professionals and mid- and later-life returnees who primarily seek graduate level knowledge for self-development. The role of women as colleagues and students in graduate study is under review. While the actual numbers and percentages of minority students are also often at issue, evidence of the underutilization of black graduate students has been presented. Debate has been opened on the purpose and role of the traditionally black graduate school. In each of these cases, the meaning of "progress" for new clientele, for women, and for minority students is determined by the viewpoint of the observer. The old myths and cliches—"women aren't really interested in careers as scholars," "blacks are only interested in education degrees" —are now subject to increasing scrutiny.

An awareness that society may no longer wish to pay for duplicate efforts in the graduate study enterprise has provoked questions about the quality of graduate study. Measuring this quality has traditionally been the domain of peer and reputational ratings. Recently attempts have been made to determine other ways to measure the quality of graduate study.

Reflecting a similar line of inquiry is a new awareness of the possibilities within graduate study for programs and institutions that aspire to "nontraditional" purposes. Although this may be nothing more than an acknowledgement that many graduate students may want to teach rather than conduct research, some experimental graduate programs openly proclaim other purposes for graduate study. These range from alternative degree structures in traditional institutions (such as the doctor of arts programs) to entirely different forms of graduate study (such as those offered by the Union Graduate School or Nova University) where long periods of resident study are eliminated.

Perhaps because of the dependence of graduate study on national priorities and its preoccupation with disciplinary inquiry, little attention has been focused in the past on the experience of graduate students during graduate study. This lack of review is being rectified as more research examines the differences that exist between what graduate students want from graduate study and what they get. In many instances there is considerable divergence between the two. Two focuses are apparent in the discussion of what graduate study should be for students: one is the perception that graduate study is a developmental experience for individuals, something more than the learning of trade secrets; another is a heightened awareness that graduate students pursue career and occupational purposes. Changing economic and demographic factors as well as changing social priorities have

made paying for graduate study and the pay-off from graduate study topics of increasing interest.

The chemical that fueled the growth of the graduate enterprise during the late fifties and sixties was a mixture of demographic fortune, Federal Government priorities that required and paid for research, and manpower demands of technologies. Now the states, who are footing more and more of the bill, are sorting through their responsibilities to maintain or weed-out institutions and programs. Many states plan to review their existing graduate programs. Unless major reversals occur in federal priorities for research funding, graduate education will probably reflect more and more what the states want.

In summary, from one point the multitude of problems facing the graduate study enterprise harbinger a gloomy future. Among these problems are the declining number of traditional students, the change in social and governmental priorities away from the product the graduate enterprise offers, the decline in opportunity for Ph.D. recipients, and the questioning of purpose and expenditure by state legislatures. Yet inquiries are underway into the underlying purposes and practices of graduate study that may promote invigoration. Graduate study has responded to social needs in the past; there are new social needs, such as the energy crisis, which beg for a response. A better understanding of the developmental effects of discipline-oriented graduate study on individuals may uncover new purposes for graduate education to serve in the future. More truthful acknowledgement of the impediments to graduate study felt by women and minority students may dissolve those blockages and create new demand. New measures of quality and different purposes for graduate study may also stimulate the enterprise. Whereas state review and planning usually means rein-tightening, it also means acceptance of responsibility by the states for a portion of the vitality of graduate study. It is unlikely that in the future graduate study will flourish as it did in the recent past. Yet graduate study does fulfill a useful social need, and the present contemplation on its purpose should enhance institutional responsiveness to social needs and consequent likelihood of survival.

Graduate Study: The Complex Enterprise

The enterprise of graduate study in the U. S. is a complex undertaking, related not only to the production of knowledge and the teaching of students (graduate and undergraduate), but also to the state of the economy and the conditions of the labor market. Coming out of a long period of explosive growth, graduate study is now in a period of stocktaking and reassessment, a period when its future directions can be charted anew.

Penetrating questions have been raised on the function and place of graduate study and research in the U.S. (Association of Graduate Schools 1976, p. 2). What is the status of graduate study? In what direction should it move? What are the employment prospects for new Ph.D.'s? Should graduate education be changed to prepare doctorate holders for different types of employment than in the past? How should resources be allocated for graduate programs and students? What should the relationship be between graduate education and undergraduate instruction? These questions must be addressed at the same time that a balance is maintained among what are perceived to be the central tasks in graduate education: "(1) educating men and women to the highest intellectual levels; (2) preserving and extending our cultural heritage and developing new knowledge; [and] (3) joining in the search for solutions to contemporary national problems" (p. 5).

Graduate education in the U. S. officially might be said to be just over one hundred years old if the establishment of the Johns Hopkins University in 1876 is considered as the starting point. However, graduate studies were available at Yale in 1847 and a Ph.D. was awarded in 1861. Although American graduate work merged the German university tradition of exacting scholarship, research, and specialization with the English college model of undergraduate education, research has always been at the core of graduate education in the United States, often in the face of charges that teaching was being neglected. Nevertheless, the level of quality of research achieved in American universities in 100 years has been ascribed by Katz and Hartnett (1976a, p. 6) to a willingness to do practical studies from which support for pure research could be obtained.

Graduate education has grown and with the growth a number of trends are apparent that serve as background for the previously ar-

ticulated problems and issues in graduate education. Briefly, the overwhelming growth of graduate education since 1876 has reflected not only the growth in population of the U.S., but also a growing percentage of college graduates choosing to pursue graduate studies. Increasing numbers of institutions offer graduate study, although as late as 1971 over half of the Ph.D.'s awarded were granted by 30 institutions. A growth in investment in graduate education has accompanied a growth in numbers, with the Federal Government being the largest single provider of support for graduate education. The consequences of growth are mixed. Graduate education has become increasingly impersonal with a movement away from an informal process toward greater prescription of curricula and specification of requirements (p. 7). The acquisition of grant money has led to the desire for more grant money and, in Hartnett and Katz's judgment, a concomitant decline in concern for students. The quantity of information about research and outlets for that information have swollen while the conception of specific professions and specialities has grown more narrow. The composition of the student body pursuing graduate studies has become increasingly diverse. Against this backdrop one can perceive more clearly the present character of graduate study.

The Nature and Purpose of Graduate Study

The nature of the graduate study enterprise in the U.S. reflects a stability of purpose and structure that has persisted. Three basic purposes of graduate education have been identified as (1) the education and development of skilled individuals, (2) the production of knowledge, and (3) the preservation and transmission of knowledge (National Board on Graduate Education 1975, p. x). These purposes remain viable. Other related purposes include furtherance of understanding mankind and the universe, continued technological advance, the production of advanced manpower, and the improvement in the quality of life for all members of society (Education Commission of the States 1975, p. 11).

In addition to these lofty purposes, graduate education can also be understood as a socialization process,

> that process by which individuals acquire the values, attitudes, norms, knowledge, and skills needed to perform their roles acceptably in the group or groups in which they are, or seek to be members. . . . By extension, professional socialization [including graduate academic education] is socialization to a particular role in society, the role of the professional. It is the acquisition of the specialized knowledge, skills, attitudes, values, norms, and interests of the profession that the individual wishes to practice (Bragg 1976, p. 6).

Although three elements characterize the socialization process in graduate education—the interaction of students with the structure of the educational setting, with faculty members, and with students (p. 14) —, faculty members are the primary socializing agents (p. 19).

In addition to a theoretical dependence on strong relationships between student and faculty to achieve the socialization purpose, much of the nature of graduate study reflects its "tribal" character. The existence of strongly held values and attitudes about good practice slow down the response of graduate education to external circumstances. This is a source of resilience and strength, but it has also increased resistance to change, and promoted a retreat to the "enclave" strategy —doing things the way they have always been done. Explanations for this motivational sluggishness include the observation that graduate education is not organized for change—the rule is to make decisions based on consensus. But there is also little articulation of new or responsive ideas; the old ways are known and accepted. Financial stress has not been stringent enough to promote lasting change. And graduate professors have questioned the prognostications about enrollment decline as much as they question anything else (National Board on Graduate Education 1975, p. 23). Furthermore, observing the response of the graduate enterprise to ideas such as the doctor of arts degree, it is unwise to expect that change is going to occur rapidly in graduate education, especially if there is strong disagreement among faculty members. Reductions in budgets tend to promote a return to the tried and true, rather than promote trial of innovative approaches, except in those institutions without substantial commitment to traditional programs (p. 26). Thus, there is a structure behind the complexity of graduate education that preserves and upholds values, but which also impedes the responsiveness of graduate education to new needs.

From the viewpoint of the establishment, this mixture of tribal stodginess and idealism has resulted in a graduate education that has responded to the needs of the nation in desperate times by offering tried and true approaches, decades of research, and questioning of givens—the essential production and transmission of knowledge. From that point of view the best future course for graduate education is for it to continue doing what it has always done, pursuing basic research and scholarship and training scholars, encouraging scholars to call the attention of society to basic problems, and relying on basic training of scholars as the primary contribution of graduate education to society (Association of Graduate Schools 1976, pp. 4, 6).

The Dimensions of Graduate Study in the U.S.

Commensurate with the multiplicity of purpose claimed for graduate education is its number of graduates and the resulting benefits to society. For example, it is known that there were 32,913 doctorates awarded in 1975 (based on a survey conducted each year by graduate deans and covering fiscal year 1975). This was a fractional decrease from 1974 and 1973. These figures are more meaningful when compared with doctorate production (arranged by sex of recipient) for the previous decade.

*Table 1. Doctorates Awarded by U.S. Universities, by Sex: Fiscal Years 1965-1975**

Year (FY)	Men	Women	%	Total
1965	14,581	1,759	10.8	16,340
1966	15,863	2,090	11.6	17,953
1967	17,944	2,440	12.0	20,384
1968	19,985	2,931	12.8	22,916
1969	22,341	3,387	13.2	25,728
1970	25,509	3,970	13.5	29,479
1971	27,247	4,594	14.4	31,841
1972	27,719	5,282	16.0	33,001
1973	27,645	6,082	18.0	33,727
1974	26,585	6,415	19.4	33,000
1975	25,720	7,193	21.9	32,913
Total	434,169	70,200	13.9	504,369

*Adapted from Table A, "Doctorates Awarded by U.S. Universities, by Sex. . . .", *Summary Report 1975* (1976), p. 4.

Referring to Table 1, it can be seen that between 1965 and 1972 the total number of doctorates awarded doubled, with an increase continuing through 1973. In each year, 1965 through 1975, the number and proportion of doctorates awarded to women increased; however, although the absolute number of doctorates awarded to men increased until 1972, beginning in 1973 the absolute number of doctorates awarded to men began to decline. And in 1974 there was the first decrease in total, absolute number of doctorates granted. Because of the time span involved in the production of a doctorate (six years on the average), the decline represents decisions that were being made several years prior to the actual decline in production of doctorates. Even so, the total number of doctorates awarded in the eleven-year period (504, 369) remains a large number representing a

substantial investment of time and money by the recipients and an enormous investment of resources by the graduate institutions.

The most recent figures (available spring 1977) for overall enrollment in post-baccalaureate programs indicate a decrease for the first time with fall 1976 enrollments down 2.3 percent compared to fall 1975 enrollments ("Graduate Enrollments Down 2 Pct." 1976, p. 10). Consequently, the future dimensions of graduate study may be expected to decrease from the heights reached in recent years.

Relationship to University and External World

Another dimension of graduate study is its close relationship to the economy. For example, the recessions of 1970 and 1974-75 decreased the demand for graduates, influenced the decisions made by potential students, and affected federal, state, and local decisions. Yet, at the same time, there was an increase in graduate school applications, which could be attributed to the poor job market for college graduates. Also, the decreasing external and academic job market for Ph.D.'s has led to the use of post-doctoral fellows in university research projects. While this has had the salutary effect of putting newly-minted Ph.D.'s to work, it has also reduced opportunity formerly available to advanced graduate students and Ph.D. candidates (National Board of Graduate Education 1975, p. 2).

While graduate education is related externally through the university and through the experiences of its graduates to the national economy, it is also directly related to the *undergraduate* education activity of a university. It must be viewed as an interdependent activity within the university.

> Graduate education is not a commodity produced simply by combining different inputs — e.g., student and faculty time — in specifiable proportions. It is, rather, the product of complex interactions within the university. The university's capacity to supply opportunities for graduate education is a function of the level of its undergraduate teaching and its research activities. The particular structure of these activities, together with the size of graduate programs, determines the basic character of the graduate education experience (Dresch 1974a, p. 61).

Not only is there a relationship between undergraduate instruction and the graduate education program but, in Dresch's judgment, a given university's ability to provide graduate training depends on the level of undergraduate instruction and the level of research activity (Dresch 1974a, p. 28). If undergraduate instructional activity is low, thereby making it less likely that graduate students may be

used for instructional purposes, instructional costs for graduate programs will be high. If undergraduate instructional activity is high or if sponsored research activity is high, graduate educational costs will be lower.

While many generalizations apply to most of graduate education in the U.S., it should not be regarded as a monolith. Rather, there are a variety of emphases, approaches, faculty interests, purposes, faculty qualifications, and student interests that differentiate one graduate program from another (Breneman 1975a, pp. 3-4). Furthermore, the competitive position and vitality of one department within a given university may differ greatly from the competitive position or reputation of another department in the same institution. Since graduate faculty members tend to be oriented toward other members of their discipline and in competition with them, a department that is doing well in that competition may feel a sense of autonomy from the university. Yet another department that is not faring as well may be more dependent on the university, and therefore susceptible to more control over its activity from the administration. The paradoxical consequence of this condition is that the strongest departments are least susceptible to change initiated by the university (p. 4). This condition adds one more layer to the complexity exhibited by graduate study.

Legacy of the Golden Age

Although the graduate study enterprise exists today as a large, complex, multidimensional activity, it is moving out of a period of most rapid and substantial growth. During the fifties and sixties enrollment in graduate programs grew at record rates. Enrollment growth was accompanied by improvement in faculty salaries, research facilities, and assistance for faculty. Financial aid for students was plentiful. From a societal standpoint, graduate education was regarded as a golden resource and became a major industry (Dresch 1974a, pp. 1-2). The two most important supporting elements were the growth of undergraduate enrollment and the growth of support for research. A rise in salaries for the graduate-educated spurred greater demand for graduate education. The use of graduate students as instructors not only provided support for them, but subsidized undergraduate instruction. At the same time, the demand for research grew and the share of research money earned by the universities increased, helping to keep the cost of graduate education down. Graduate programs proliferated.

The contrast with the current situation should be apparent: undergraduate enrollments are no longer increasing nor is research activity awarded to the university. Consequently, two major sources of support for graduate education have been seriously curtailed (Dresch 1974a, pp. 39-42).

When tracing the golden legacy, additional factors besides the overwhelming growth in enrollment and expansion of federal research programs should not be overlooked. As young doctoral students finished their programs, they left inspired to create more graduate programs in which to teach. Furthermore, state formulas for support often were based on the number of graduate students enrolled, which led the professoriate to encourage students to join up. Finally, in many states a sense of civic pride promoted the "need" for graduate programs because neighboring states had them (Millett 1974, p. 84). As a consequence of these pressures and support for growth in graduate education, the graduate enterprise enjoyed a period of tremendous support and encouragement during the fifties and sixties. Today the graduate enterprise faces numerous problems that will tax the steadfast purpose of the institution.

Major Problems and Conditions Facing Graduate Study

The National Board on Graduate Education (1975) in summarizing the conditions facing graduate study identified the following principal trends that serve to identify several of the problems with which graduate study must deal.

(1) A steady reduction in the demand for new Ph.D.'s.
(2) A reduction in the growth rate for research and development expenditures.
(3) An adjustment in the supply of new doctorates, since a reduction in number produced will decrease the supply; even so, supply will continue to exceed demand in many fields.
(4) Continued decline in the monetary support available for graduate students.
(5) Some increase in enrollments by older, part-time, nonresidential students, by women returning for degrees, and by nondegree students.
(6) An increase in the number of women and minority students seeking graduate education.
(7) Continued emphasis on cost analysis, accountability, and program evaluation.
(8) No major breakthrough for more support of graduate education.

Among these trends most observers would probably applaud the increasing scrutiny of expenditures, better program evaluation and broadened opportunities. The remaining trends pose threats to the traditional modes of graduate study.

This chapter summarizes the effects of anticipated and actual enrollment and demographic changes and the decline of federal concern with graduate education. The declining market for Ph.D.'s is a major problem in itself, but one which accompanies the related problem of aging faculty and possible decline in research productivity. Since several of these problems could be ameliorated by changing priorities, several trends in social values are also important contributors to the difficult straits of graduate study.

Demographics and Declining Enrollments

In its most succinct form, the problem faced by graduate study is how to respond to a steady or declining state in enrollments originat-

ing in demographic patterns. Birth rates from years past and college attendance ratios among the traditional populations that might enter graduate study suggest that growth in graduate enrollments will never return to the high levels of the past. The problem of graduate enrollment parallels the problem of undergraduate enrollment—a decline or stabilization in number. The consequence is that the number of traditional graduate students will stabilize and decrease, with fewer doctoral students being produced. Year-to-year growth in numbers is a phenomenon of the past (Association of Graduate Schools 1976, p. 9).

Declining first-year full-time and total full-time enrollment occurred in the early seventies. Consider the data in Table 2.

*Table 2. Full-Time Graduate Enrollment in 1,201 Doctorate-Granting Departments**

First-year Total Full-Time Enrollment by Fiscal Year					
1968	**1969**	**1970**	**1971**	**1972**	**1973**
26,692	25,190	26,069	24,973	23,671	22,469
Total Full-Time Enrollment by Fiscal Year					
79,692	81,284	81,251	79,993	77,661	74,471

*Derived from Table 10, "Full-time Graduate Enrollment in 1201 Doctorate-Granting Departments, by Quality Category and Year (14 disciplines)," in Breneman 19.5a, p. 28.

First year full-time and total full-time graduate enrollment in doctorate granting departments (in fourteen disciplinary categories) peaked in the late sixties and early seventies and then began to decline.

Some maintain that declines in graduate enrollment can be regarded as a healthy response to declining demand for graduate-educated manpower. In fields such as physics, enrollment has been dropping for a long time in response to declining demand. But, the demand vacillates. If the nation should suddenly need physicists, there would be a five- to six-year time-lag between the perception of the need for greater enrollment and production of doctorates in that field (Brenman 1975b, p. 83). For fields such as the humanities and social sciences, without substantial nonacademic demand, declining enrollments also can be seen as the downturn of a cycle: a drop

in undergraduate enrollment leads to a drop in demand for Ph.D.'s, which leads to a drop in graduate enrollment and a drop in demand for graduate faculty, which leads to a further reduction in the demand for Ph.D.'s. Funding based strictly on enrollment may exacerbate this cyclical effect (p. 84). Since enrollment declines can be expected, this cycle will have to be taken into account.

Considering the available projections and enrollment trends, Cartter predicted that collegiate enrollments during the seventies would be reasonably stable, but the period 1980 to 1985 would witness contraction unlike any previously experienced. However, even this prediction may be too sanguine based on the fact that high school graduation rates have declined, as have college attendance and graduate rates. Furthermore, postbaccalaureate education is more responsive to labor market conditions than is baccalaureate education, since most students enter graduate study with a professional interest in mind (Cartter 1976, pp. 3-6). Hence, graduate enrollment expectations will have to be moderated by realistic appraisal of labor market conditions for graduates.

The present demographic and enrollment uncertainty is especially poignant when contrasted to the sixties; then graduate enrollment was the second fastest growing sector, community college enrollments being first. Graduate school enrollment grew 153 percent from 1960 to 1970. But the ratio of graduate attendees to baccalaureate recipients peaked in 1967-68 (Cartter, 1976, pp. 73-78). Now, the problem is holding on in the face of enrollments that will not grow.

Changing Federal Priorities

Enrollment declines, particularly those associated with basic demographic changes, such as a decreasing number of traditional college age students, is one reality in the state of graduate study. Another reality has been the decline in the relative status of graduate education as a national priority. During the fifties and early to mid-sixties federal support for graduate education grew. For university-based research it grew at the rate of 15 percent per year. At the peak of federal support for graduate study there were more than 50,000 federally supported fellowships. This comfortable support began to decline abruptly in the late sixties (National Board on Graduate Education 1975, pp. 2-3). The peaking of resources applied to university and graduate study-related activities can be seen indirectly through national expenditures for research and development. In 1955 the expenditure of 6.2 billion represented 1.6 percent of the Gross Na-

tional Product (GNP); in 1967, expenditure of 23.6 billion represented 3.0 percent of the GNP. By 1974, the expenditure of 32.1 billion dollars represented a decline to 2.3 percent of the GNP (p. 9). The same statistical peaking and decline is reflected in federal support to graduate students. In fiscal year 1968 there were 51,446 graduate students who had federally supported fellowships and traineeships. By fiscal year 1974 the number had shrunk to 18,472, many of which were for master's degree candidates in special professional programs.

In the judgment of the National Board of Graduate Education, the decline in federal support has reflected an Office of Management and Budget line of thought that graduate study should be the *private* investment in human capital, an investment that should not be made with public funds. As for federally-sponsored research, from this view point the university is only one of several competing institutions that can perform research for money (p. 17).

It is important to realize that federal support during the fifties and sixties was perceived as a federal response to emergency conditions, a response to a national crisis. Nonetheless, the response in the form of monies for research and graduate support had the indirect effect of supporting graduate departments and institutions and contributing to the expansion of these departments. Thus, in the 1967-68 year, federal funds represented 27 percent of the net current income of all private and public colleges and universities and 32 percent of the net income of private universities. Since the remaining bulk of federal investment in graduate education today lies with funds for research, "shortages" and "surpluses" of graduate trained (or in training) manpower to do that research are "to a considerable extent policy question[s], depending on the definition of national need at a given time" (Federal Interagency Committee on Education 1975, p. 7). In other words, expenditures for research are a matter of choice by the Federal Government. Such expenditures are currently declining, particularly because of declining military expenditures for research; however, the sudden arrival of a new issue, a new emergency, might reverse the decline. In these instances educational institutions make the policy a reality through the expenditure of public funds for graduate study (Dresch 1974a, pp. 45-47).

Given this close connection between federal policy, university and college expression of it, and the condition of graduate study, what should the federal role be? If the goals of federal support are to solve current problems in society, develop competence, and train manpower

to preserve and advance cultural traditions and to ensure access to graduate education, certain principles for federal support can be stipulated. The graduate education and research establishment is a national resource on which the solution of social problems depends. The market for graduate trained manpower is also nationwide. Furthermore, since the Federal Government employs many graduate-trained persons, certain conditions may even make it necessary for the government to stimulate entry into various graduate fields. The production of knowledge itself may require public support since there may be little pay-off for private support. But foremost among the principles to be recognized is the relationship of federal expenditures to basic activity in graduate education.

> Federal involvement in areas such as research and development is so dominant that government decisions have a far-reaching impact on both the supply of and demand for knowledge and manpower; hence, federal policy may be *the* major force to contend with . . . federal policy should therefore not be viewed as an incidental participant in the supply-demand process, but rather as a determining force in its operation (Federal Interagency Committee on Education 1975, pp. 10-12).

One consequence of the declining federal interest in research expenditures is a possible shift in interest by graduate departments from basic research to applied and developmental research, which reflects national support for research projects with an immediate pay-off (National Board on Graduate Education 1975, p. 10). In Dresch's judgment this shift has already begun. If it continues, the nature of graduate education may have to change to accommodate demand for applied research. The less prestigious universities might undertake this task more quickly than the more prestigious, leaving prestigious universities with the basic research tasks (1974a, p. 52-56). Another possibility is that semiautonomous research institutes, organized in different patterns than the discipline-oriented university, may grow and become a new location for the type of intensive research training formerly characteristic of research training in graduate study. In Dresch's view (1974b, p. 174, 175) the university will have to adapt to changing needs, altering its structure and content of its program if it is to compete for applied research money. However, a shift to applied research should be accompanied by an awareness that applied research assumes the existence somewhere of basic research. Furthermore, the educational value to students of applied research may be less; they may become only employees in the applied research endeavor (National Board on Graduate Education 1975, p. 10).

Thus, one of the major problems facing graduate education in the

present and future is the impact of declining federal support for research. At one time the Federal Government supplied major support for the graduate education enterprise through money for research activity and fellowship support. This expenditure was a policy decision, a choice by the government to allocate funds. Since the late 1960's, the relative level of federal support has declined. Although it seems unlikely that major changes will occur, federal research and fellowship expenditures are matters of political choice that can change.

Aging Faculty; Declining Science?

Another consequence of demography, enrollment decline, and changing federal priorities is the eventuality of much older graduate faculty. Atkinson reports that the National Science Foundation projects enrollment in advanced scientific and engineering degree programs to be down 15 percent in 1975 from 1970. In the physical sciences, after a peak in 1968, expected enrollment in 1985 is expected to be down 55 percent. Even with these decreases in enrollment, a more than adequate supply of doctorates is expected at the same time as the need for faculty declines. Consequently, the age distribution of faculty is expected to rise, with most of them being tenured. Evidence of this effect is already visible. For example, between 1968 and 1974 faculty members in physics departments classified as "young" (that is, having received their doctorates less than 7 years before) declined from 38 to 18 percent. This decline occurred across the quality range of departments, but with higher proportions to tenured faculty in departments that were labelled "good" than in those departments labelled "distinguished" (Atkinson 1976, p. 8). A suggested solution to this problem is to encourage early retirement, but the absence of opportunity for young scholars in engineering and science, due to older faculty members holding the tenured spots, may be expected to show up in all graduate departments in the future.

Ph.D.'s With Nowhere To Go

Perhaps the most dramatic and well-publicized problem within the state of graduate study is the problem of Ph.D.'s who cannot find jobs or who cannot find the jobs they thought they would find at the completion of their degree programs.

Again, this problem must be put into perspective against what the condition of graduate study was in the late sixties. Between 1957 and 1967, for example, enrollments in higher education grew at a rate of 7.75 percent annually on the average (research funding grew

at the rate of 10 percent). The demand for Ph.D.'s far outstretched the available supply. Since 1967 enrollment growth has slowed and research fund expenditures have been constant. Against these facts can be contrasted the *70 percent increase* in the number of doctorates awarded between 1967 and 1973 (Cartter 1976, pp. 1-2). Although changes in expenditures of public money are possible that might use that increased number of new doctorates, such as encouragement of life-long learning and reduced teacher-student ratios, these changes are not now reality. As Cartter observes, "In the last several years there have been more cases of faculty terminations and discontinuance of programs than moves to smaller class size and diminished student-faculty ratios" (Cartter 1976, p. 9).

Academic professionals have been slow to recognize the problem even though it arises directly from demographic trends. The year 1981 will be the high point in collegiate enrollment based on traditional attendance patterns; beyond that, no growth in the college age group can be expected in the lifetime of present educators (p. 40).

Although doctorate recipients are employed in activities other than college and university teaching, many doctoral students strive to gain a faculty position upon receipt of their degree. The actual demand for their services is influenced by at least four factors: overall enrollment, student/faculty ratios, faculty retirement policy, and the net migration into teaching of new teachers (Cartter 1976, p. 221). Because of the variation in demand that is possible when these factors are combined, it is difficult to estimate how many new faculty members will be needed. Cartter estimates that between 1962 and 1972, 27,000 new faculty members were hired annually; between 1972 and 1982, 16,000 will be hired annually. From 1982 to 1992 it is estimated that fewer than 10,000 new faculty will be hired annually. Given the present capacity of graduate schools to produce more than 40,000 new doctorates annually, the size of the gap between possible production and estimated need is obvious. If as many as three-fourths of the new faculty hired in the near future (up to 1982) are Ph.D.'s, there would still be only 12,000 hired annually, and from 1980-85, only 7,500 hired annually. Thus, based on estimated *academic* demand for Ph.D.'s in the immediate future, only 35 percent of the possible graduate school output will be hired, and perhaps only 20 percent during the 1980's. This suggests that serious attention be directed to nonacademic employment of doctoral recipients (p. 223).

Another aspect of the problem is the impact on doctorate holders by field. In Cartter's estimation, the most impact will be in those

fields where traditionally the largest number of degree recipients went to work in an academic setting. Thus, greatest impact will be in the humanities and social sciences, with diminishing impact on the biosciences, physical sciences, and least impact on engineers. Nevertheless, when expected production is merged with anticipated demand, it appears to Cartter that in the late 1970's doctorate production will exceed demand by one-third, and during the 1980's production will exceed demand by 50 percent (Cartter 1976, p. 238).

As was the case with fluctuating graduate school enrollment, changes in the "market" for doctorates were appearing during the 1968 to 1973 period. Consider Table 3.

Table 3. Proportion of New Ph.D. Recipients in Five Disciplines Reporting No Specific Employment Prospect at Receipt of Degree: 1968-1973•

	Percent, by Fiscal Year					
Discipline	**1968**	**1969**	**1970**	**1971**	**1972**	**1973**
Chemistry	4.5	7.8	11.4	15.2	18.9	17.2
Economics	3.1	3.3	4.6	6.1	6.3	6.4
Electrical Engineering	7.1	10.7	11.6	19.6	18.4	15.0
English	3.9	7.9	9.3	13.2	15.5	21.5
Psychology	6.1	8.0	8.8	10.0	12.3	13.6

•Data reproduced from Table 30, "Proportion of New Ph.D. Recipients Reporting No Specific Employment Prospects at Receipt of the Degree, by Discipline and Year (5 disciplines)," in Breneman, David A. 1975a, p. 46, which is based on National Research Council doctorate records file data.

It is evident that doctorates without specific job prospects at the time of degree completion appear in different proportions in different fields, even though there was a general increase in lack of prospects between 1968 and 1973. As Cartter has suggested, a humanistic discipline, in this case English, appears to have suffered the most severe decrease in job prospects upon receipt of degree.

The overall picture is that during the early seventies a shift from demand to oversupply occurred, with variation between the disciplines and year-to-year fluctuation. Yet those fields where most doctorates traditionally move into academic positions are those that have suffered the most serious supply-and-demand gap (National Board on Graduate Education 1975, p. 5-6). The Board reminds us that forecasts and projections should be viewed with caution since the prediction of events tends to influence other events. Nevertheless,

labor market projections are being used in decisions about graduate education.

The projections for academic demand are based primarily on undergraduate enrollment expectations. Much more difficult to predict is the nonacademic demand for doctorates. Even if it were expected to be high, nonacademic employment is regarded with disdain by many doctoral students (p. 32). Another element that might influence employment for Ph.D.'s is expenditure for research and development and is also difficult to predict. Little increase is expected (pp. 33-34). In view of these realities, the National Board concludes "the two principal sources of employment for Ph.D.'s that have traditionally made direct use of the advanced education and research skills provided by doctoral education—college and university teaching and nonacademic R & D employment—will fall far short of the likely number of new Ph.D.'s entering the labor market" (National Board on Graduate Education 1975, p. 34).

The Board also suggests that adjustment in supply of doctorate holders is more likely to occur in fields such as physics and chemistry (where demand traditionally has fluctuated) than in English or history. More difficulty can be expected in the humanities and social sciences, since nearly 85 to 90 percent of Ph.D.'s in those fields have typically entered academic positions (p. 36). If a substantial drop in graduate enrollment occurs because of absence of opportunity for graduates, a contraction in the disciplines may be the result. Thus, the most hazardous labor market terrain for doctorates will be those fields that have traditionally placed their graduates in academic settings. Furthermore, while absence of opportunity may eventually correct the oversupply problem, it may also result in a deceleration in the forward progress of knowledge (p. 37).

Exact data on the market situation for each discipline is hard to locate. To some extent, an unwillingness to come to grips with the problem has characterized the graduate enterprise. For example, in 1973 investigators for the Council of Graduate Schools in the U.S. sent letters of inquiry to 19 national professional associations, a cross-section of academic disciplines representing 80 percent of the typical Ph.D. output of the nation. At that time, the professional associations were only beginning to face the problems of unemployment and underemployment of Ph.D.'s in their fields. In some cases there was an absence of agreement as to whether a problem existed and apparently the conviction was held by some respondents that any job problem that existed could be surmounted by a Ph.D.:

> The high intelligence of the Ph.D. holder normally would make it possible for him or her to enter a wide variety of jobs normally filled by persons with lesser qualification; the normal intellectual curiosity and motivation of the typical Ph.D. holder would seem to lead this person to almost any type of employment in preference to unemployment (a sample response quoted in Mariella and Ryan 1974, p. 2).

Although it is difficult to determine the extent to which awareness of the present and forthcoming employment problem for Ph.D.'s has sunk into the collective consciousness of the graduate enterprise, three possible solutions are often mentioned. One solution is to change the curricula and attitudes expressed by faculty members so that career concerns, including job seeking, are more legitimate among graduate students (See National Board on Graduate Education 1975, p. 59). The purpose would not be to turn graduate programs into career programs but only to recognize the dimensions and importance of the problem to graduate students. Another approach is to recognize that graduate education may have to become less an "investment good" and more a "consumer good." This translates as an acceptance on the part of institutions that some students will make conscious choices to pursue graduate study for their own personal development and knowledge, which includes an awareness that completion of their graduate education will not lead to an academic career but will broaden them as individuals and intensify their level of skill (Breneman 1975b, p. 84). A third response to the problem is to provide information about the realities facing graduate students and to let a free-market response occur (Association of Graduate Schools 1976, pp. 23-24).

There are sufficient substantive problems to keep the graduate enterprise alert as the seventies close. One additional problem is the absence of public support for graduate education. The publics who are interested in graduate education and who understand its purposes are few. Millett (1974, p. 84) calls for renewed public support and understanding of graduate education, particularly from the policy-makers in our society. To improve the level of support and understanding, a new rationale for graduate study is needed. This rationale would combine the traditional purposes of graduate education—the creation and preservation of knowledge and the training of scholars—with a basis for public appeal. Politically acceptable budgets must be formulated for graduate study that reflect the recognition that graduate-educated persons also become leaders in society and university-produced knowledge frequently has practical benefit.

Changing Clientele and Colleagues

Although the major problems facing the graduate enterprise in coming years may change the character of graduate study, an additional impetus arises from the awareness that the clientele and colleagues in the graduate enterprise can change. The National Board on Graduate Education (1975, p. 42) observes that new clientele—diverse groups of people seeking graduate education for the first time, mature career changers, professionals seeking an up-date—represent a major potential to change graduate education, although it is not clear to what extent the potential will be realized in the form of enrollment increases. A new perception of women and minority members as students and colleagues is also causing a reexamination of many myths and traditions about who goes to graduate school, who survives, and why. Women and minority students have been underrepresented in numbers of doctorates awarded and entry to prestigious fields of study. The special role black graduate schools occupy also points to the need for inquiry into how the graduate enterprise serves the changing clientele that now claims it.

Who Goes to Graduate School and Why?

Before considering how and why new groups participate in graduate education, it is helpful to know why students typically chose graduate study. Baird (1976) surveyed 21,000 college seniors in 1971. A year later, follow-up surveys produced returns from almost 8,000 of the 21,000 students. Students responding to the follow-up surveys gave the following reasons for pursuing graduate study, as indicated by their response of "important" or "very important" to the nine statements:

(1) desired vocational field requires an advanced degree	78%
(2) improve chances for good salary, promotion, etc.	61%
(3) parents' encouragement	50%
(4) greater prestige	45%
(5) faculty encouragement	45%
(6) postpone military obligation	7%
(7) unable to find satisfactory employment	22%
(8) interest in learning about field	82%
(9) received fellowship or scholarship	27%

Baird summarizes that

> Most students choose to attend graduate school for a mixture of reasons. Many attend primarily because they need a degree to be able to do what they want to do or to be able to attain the positions and earnings they would like to have. These pragmatic reasons are usually combined with a commitment to the academic way of life and a strong interest in a particular field (p. 26).

Baird did not find strong relationships between background variables and attendance at graduate school; apparently the undergraduate experience sorts out those who are not socialized to a middle-class value of pursuing long-term objectives through study (p. 33). But choice of field is related to economic status; few poor students plan to go to medical or law school. Those students who attend graduate school have frequently been encouraged to do so by their parents (p. 34). Baird concludes that in large measure those college seniors who go on to graduate school have a history of encouragement for their endeavors originating either from family attitudes or their own high academic attainment (p. 36). Students choose *particular* graduate programs because they believe they are of high quality and because other people recommend them. And, for the 51 percent of the students who one year later are in the programs they planned to attend, the choosing process works. Baird argues that the other 49 percent could have benefited from better information, even though it would have to be complex information that enabled them to choose departments and programs compatible with their interests and talents (p. 43). Baird's data indicate that traditional graduate students are people who have been successful in an academic setting, received encouragement toward their work, and perceive a vocational purpose in graduate study.

The fact that good students who have survived college and those who probably come from other than the lowest socioeconomic family background categories are those who attend graduate school stands as the basis for Dresch's refutation of what he refers to as the "equity argument" for support of graduate education. Dresch observes that "the probability of a person's entering or completing any level of education is highly correlated with his socioeconomic status" (Dresch 1974a, p. 17). Furthermore, the higher the level of education pursued by the student, the higher the correlation. He argues that subsidization of graduate education is probably subsidization of a process pursued by the children of parents who are already making it in our society. Few from the lower socioeconomic status categories ever attend a graduate school (p. 18).

More penetrating than profiles of traditional graduate students are questions such as Who shall be selected to attend? and What shall they study? These questions give rise to other questions about the purpose of graduate study. A common answer to the first question is "only the best academic students should attend." In Wallach's view, the answer to the second question is largely determined by the answer to the first (Wallach 1976, pp. 178-180). The "best" students traditionally have been selected by methods such as tests designed to select students best able to do academic tasks such as those found on tests. Wallach argues that this procedure should be reevaluated, since, in his view, there is no evidence of a relationship between scores on tests and attainment in life, especially for students who are in the middle and upper ranges of intellectual ability or those who attend graduate study. Furthermore, attainments indicated by such tests do not predict attainment in other realms of endeavor. Reflecting a rather consistent theme in current literature about graduate study, Wallach argues that candidates ought to be selected for graduate programs using the evidence of talent in early life as a basis for determining what the student might want to do at the completion of a graduate program, which would then be designed to accomplish that purpose. This requires more honesty about the occupational purpose of graduate education so that a sample of behaviors could be obtained from prospective candidates. For example, students whose objective in graduate study is to teach should be chosen from those who have demonstrated a talent for teaching in the past. Those who choose to do research could be selected on the basis of evidence for performing research. Practitioners would be chosen in similar ways. This method for choosing graduate students would broaden the span of human talent developed in graduate education and decrease the competition for graduate students from a narrow range of academic talent (Wallach 1976, pp. 178-209).

Leaders in graduate study are definitely aware of the demographic patterns currently being examined by administrators in undergraduate colleges, which data suggest that "a substantial and steadily expanding population of older persons with both nonvocational and vocational interests will be seeking graduate education" (Association of Graduate Schools 1976, p. 10). Whereas the women and minority students gaining access to graduate study may seek nondiscriminatory entry to traditional programs, the new population may want *different* forms of graduate education featuring weekend programs, evening courses, and more eclectic approaches to knowledge. Many students will not be interested in graduate degree credit but will seek to learn

for some self-defined purpose. Because of this, the opportunity to respond to new groups of students in graduate education suggests a need for greater flexibility as well as new methods to pay for planning, counseling, and scheduling, especially if large numbers of students enroll in other than full-time programs (p. 11).

Women as Colleagues and Students in Graduate Study

For some time certain trends have been evident respecting the participation of women in graduate study and their success in terms of degrees received. In 1900, 9 percent of the doctorates awarded were received by women; in 1970 this ratio had increased to 13.3 percent! Generally, the higher the academic degree, the lower the percentage of degrees awarded to women. In 1970, 43.2 percent of bachelor's degrees went to women; 34.8 percent of master's went to women; 5.4 percent of first professional degrees went to women, and 13.3 percent of the doctorates (Feldman 1974, p. 5).

Feldman, using returns from thousands of completed mail surveys (in programs sponsored by OE, ACE, and the Carnegie Commission) administered to graduate students and faculty at hundreds of colleges and universities, observes that there are two predominant attitudes toward women in academia: one is that there are essentially no differences between men and women in terms of what women can do—they are just discriminated against; the other point of view holds that women are different, physiologically and temperamentally, and for that reason the socialization they undergo is different from that of men (p. 12). Regardless of perspective, real differences exist when you examine where women students go for graduate study and what happens to them as they progress through graduate study. Generally, women are more likely to be found at institutions of low or medium quality (p. 15) and, regardless of location, they are likely to be in the minority. Furthermore, their traditional choices of area of study have been those perceived as "feminine," and also those perceived by Feldman's respondents as lower in prestige, lower in economic rewards, and lower in power (pp. 45-46). Thus, women graduate students are more likely to be in the humanities than in the sciences and in programs that emphasize teaching; "male" fields are those that emphasize mathematical approaches and research. (See also National Board on Graduate Education 1975, pp. 43-44).

The very choice of graduate study is a different one for men and women from the beginning. In Adler's view (1976, p. 202-203) the decision to attend graduate school frequently represents the choice for men of which career. For women, it represents the choice of

a career. Therefore, to choose graduate study as a woman may represent more of a change in life plan. Women who choose graduate study decide at a later age and are more likely to have had work experience. They receive less cultural support, typically, before graduate school, but may receive more support once the decision has been made.

A traditional belief among faculty is that the activity of women in graduate study reflects an absence of dedication. In Feldman's view, this belief probably becomes part of a self-fulfilling prophecy. Believing women to be less dedicated to their graduate study experience, professors pay less attention to their women students. In return, the women students act less dedicated. Thus, the belief is upheld (p. 123). In some measure, Feldman found inequality to be pervasive in the experience of women in graduate study in the U.S. Women are underrepresented in undergraduate schools and on faculties. Women who enroll in graduate school are less likely to finish their degree and more likely to be enrolled in low-status fields. Yet in Feldman's view, when women are given an equal opportunity they are as dedicated to graduate study as are men students (p. 137). Feldman identifies the persistence of stereotypes as one of the major impediments to future progress by women graduate students. Consequently, the graduate education enterprise must join other educational institutions in working to overcome the stereotyping if women graduate students are to have an equal opportunity. Holmstrom and Holmstrom (1974) also identify faculty attitude as an impediment to the progress of women graduate students. In a world where recognition from faculty is critical to success (and to feeling successful), many women students perceive a negative attitude toward them among faculty members. Furthermore, to achieve the level of collegiality with faculty members achieved by men students, women graduate students have to distinguish themselves academically (p. 17).

Referring to Table 1, it is evident that the number and percentage of doctorates being awarded to women has increased sharply since 1970. In 1975, close to 22 percent of the doctorates awarded in the U.S. were awarded to women. However, there is ample room left for improvement: between 1920 and 1975, 14 percent of the doctorates awarded went to women (*Summary Report 1975*, p. 4). There is some irony also in the fact that at the present time, with an uncertain market for new Ph.D.'s, the rate is the highest it has ever been; previous highs occurred in 1945 (20.5 percent) when men had been at war. During the fifties and sixties, periods of great growth

for graduate education, percentages of doctorates awarded to women hovered around 10 percent (p. 4).

This brief discussion of the problem of women in graduate study barely sketches the enormity of the limitation of opportunity evident in the statistics on doctorate productivity; in other words, decrease in participation rates at higher degree levels and lesser participation in more prestigious programs. The problem warrants and is receiving treatment in many recent studies. This discussion has revealed only the tip of the iceberg of what remains to be done, and is another part of the complexity of the state of graduate study.

Minority Students in Graduate Education

There are many similarities between the "place" of minority students in graduate study and the "place" of women in graduate study. Minority men and women (blacks, Chicanos, Puerto Ricans, American Indians) comprise more than 16 percent of the total population of the U.S. Yet, they usually represent less than 6 percent of students enrolled in master's and doctorate programs in U.S. colleges and universities. In 1973-74 they earned fewer than 5 percent of the doctorates awarded (National Board on Graduate Education 1976, pp. 1-3).

Another pattern reminiscent of the data regarding women students is in the type of graduate study the small percentage of minority students choose to pursue. In 1973-74, blacks, Hispanics, and American Indians received 2.6 percent of the doctorates in natural science, yet they received almost 5 percent of the total doctorates awarded. Fifty-nine percent of the Ph.D.'s received by blacks were in education. Even so, this figure represented only 8 percent of the total number of doctorates in education (p. 4). The enrollments reflect a choice that occurs when minorities graduate from college: they switch from higher prestige fields to lesser prestige fields.

Similar data are available from a February 1974 survey of minority graduate enrollment in Ph.D.-granting institutions conducted through the higher education panel of the American Council on Education (El-Khawas and Kinzer 1974). Representing 1973 fall graduate enrollment, total minority enrollment (black, Spanish- surnamed, Asian-American, American Indians) represented 7.2 percent of the total graduate enrollment at the institutions surveyed (p. 3). Black enrollment was 4.4 percent; Spanish- surname 1.1 percent; Asian-American 1.4 percent; and American Indian 0.3 percent. Within this survey, enrollment by field for blacks also varied sharply. Very low percen-

tages of enrollment were found in such fields as engineering, physics, biochemistry, and other life sciences. The ACE panel found 43 percent of black enrollment to be in education (p. 16).

The "why" for this pattern of low graduate school enrollment is complex. Blacks may encounter difficulties financing graduate education, since they typically must rely on greater self-support or loans as opposed to fellowships. They are more likely to have attended less prestigious institutions. (In 1973-74 almost half of the bachelor's degrees earned by blacks were earned at predominantly black institutions.) Choice of nonscientific graduate programs probably represents the result of a form of "tracking." To study advanced scientific topics in graduate school requires many years of previous study designed to achieve that end. At the same time, black students may have false fears of "science" that reflect an absence of academic self-confidence (pp. 7-10). Once in graduate school, minority students may sense indifference, which may be the same treatment other graduate students are receiving. The absence of black faculty members—2 percent of faculty at major research universities in 1975 were black—means fewer role models and faculty members who understand (p. 12). The drawn-out nature of graduate study may be interpreted as an unnecessary barrier to success. Black students may have strong dedication to ethnic concerns, dedications that may receive short shrift in graduate study.

The status of minority students in the state of graduate study is also interrelated with many of the other problems facing graduate study. A decline of federal support and a weak labor market have made graduate study a less attractive alternative. Work after college may look more attractive. The morality, legality, and efficacy of special admissions programs have been questioned. Attention to women in graduate study may appear to be a decrease in interest in minority students.

The special problems and opportunities represented by minority students in graduate schools also deserve extended treatment not possible here. Yet, as in the instance of women in graduate study, there is ample evidence of much opportunity for improvement in the treatment of minority students. Furthermore, there is the added challenge that at each prior step (secondary school, college) treatment and encouragement of minority students must be improved so that the pool of students reaching the level for admission to graduate study will more adequately reflect the proportion of minority members in the population (p. 10).

Black Graduate Schools

One of the anomalies within graduate study is the existence of twenty-eight traditionally black institutions that offer graduate degrees, including four (Howard University, Atlanta University, Meharry Medical College, and Texas Southern University) that have doctoral programs. The *Adams v. Richardson* court decree requires the Department of Health, Education and Welfare to enforce Title VI of the Civil Rights Act, and to force those states operating dual systems of higher education to consolidate them; yet, the traditionally black graduate institutions are regarded by their deans as representing a distinct opportunity for black students. The Conference of Deans of Black Graduate Schools (1976) asserts that the black graduate school serves the traditional purposes of graduate education while meeting needs held by a specific cultural community and providing an atmosphere where black students are successful (p. 193).

In recent years the black graduate schools did not receive the funds that were awarded by the Federal Government for research programs, yet special programs established for black colleges tended to function as conduits for federal money to special segments of the population. The present enigma for black graduate schools is how to continue improving in a time of budgetary restraint and to shake traditional isolation from the rest of graduate education, while retaining a special identity as an institution serving the special needs of black students and the black community. Money is needed to improve facilities, upgrade faculty, and assist graduate students to enter the mainstream of graduate education while at the same time pursuing and creating distinct standards for the education of black and other minority students. It is the view of the Conference of Deans of Black Graduate Schools (1976) that the majority of institutions have not provided a pool of trained minority personnel and they probably will not. For this reason, they maintain that the broader interest of graduate education, and minority graduate education in particular, can best be served by preservation and support of the traditionally black graduate schools (p. 215). Although the value of these institutions to the minority students can be documented (pp. 196-197), they remain another puzzle in the state of graduate education, since one objective for the mainstream graduate institutions is to recruit and foster the success of more black students.

As the graduate enterprise works out its future course, new clientele will be a part of the picture, especially from the underserved minority students, women, and students whose purpose may be only to take

one graduate course. Yet optimism for the potential role of these clientele must be tempered by the recognition that a graduate program for them is drawn into the same web of problems and issues facing graduate study in general. Perhaps the condition of the black graduate school illustrates this interrelatedness. While it has served a special need not served in the past—to provide graduate education for the black student and community—today it must search anew for a purpose, seeking to meet special needs, improve quality, and connect with the broader stream of graduate education at the same time as that enterprise itself faces major problems, including cutbacks in support.

Quality Assessment in Graduate Education

Remembering the size, rate of growth, and influence of graduate education during the fifties and sixties, one can understand why concern was expressed over the evaluation of quality. With the appearance of kinks in the apparent future for graduate education during the last sixties and seventies, quality assessment of graduate schools grows in importance. Attempts have been made to change the nature and format of quality evaluation for graduate study from the reputational rating format, which emphasizes the image an institution has as a producer of scholarship and scholars, to a method that encompasses more diverse purposes. However, the design of new evaluation methods for graduate programs is as difficult as defending the reputational rating as the only method.

Reputational Ratings

When ratings of graduate school quality are referred to, most references are probably to Cartter's *An Assessment of Quality in Graduate Education* (Washington, D.C.: American Council on Education, 1966) and its successor by Roose and Andersen, *A Rating of Graduate Programs* (1970). Roose and Andersen explain that their purpose is to furnish prospective graduate students with information on programs and faculties, to assist administrators to allocate resources, and to provide a measure of success for policy-makers. In each case, the decisions should be made with recognition that the ratings are based on the *reputation* of a graduate program and its faculty p. xi). They visualize students using the guide to choose worthwhile graduate programs that exceed a minimal floor of quality and discourage the use of the ratings for pecking-order determination (p. 2).

The Cartter and Roose-Andersen publications are based on surveys mailed to scholars (junior and senior faculty, and department chairmen) nominated by graduate deans. The Roose-Andersen publication summarizes the perception of these scholars collected from 6,100 usable returns (pp. 28, 31). The survey instrument itself solicits biographical information about the respondents and their rating of institutions. Thirty-six different questionnaires (one designed for each discipline) list those institutions that awarded at least one doctorate in the discipline prior to the survey administration. Questions elicit each respondent's evaluation of the quality of graduate faculty in his disci-

pline at each listed institution, an opinion on the effectiveness of doctoral programs at each institution, and an assessment of change in the institution's offering in the discipline in the previous five years. In rating program effectiveness, the respondents are encouraged to consider the accessibility of faculty, scholarly competence, curricula, instructional and research facilities, and the quality of students, among other factors. The results of each major category of opinion about a disciplinary program at an institution are summarized in a numerical score (p. 4).

The Cartter and Roose-Andersen reports received widespread publicity and are often used in other forms of research about graduate programs and faculty (see, for example, Atkinson 1976). According to Breneman (1976) there is a fairly constant clamor for updating the ratings, given that graduate programs change and that the market condition for doctorates makes it even more necessary to choose a program wisely (pp. 1-3). However, among the objections to new ratings done in the manner of Roose-Andersen, aside from questions regarding validity and methodology, are questions about whether it is appropriate to further a technique that reinforces the singular purpose of graduate education as the production of research scholars. In Breneman's words, "if the new survey is conducted as the last two have been . . ., the message driven home will be that doctoral education serves the singular purpose of educating people in the tools and techniques of scholarship and research and that all doctoral programs should be rigorously evaluated in those terms". (p. 5.) This will create greater pressure upon new graduate programs and old to conform to the "Harvard-Berkeley" model. A new form of rating that explored different purposes for graduate education could be an equally powerful source for change (p. 6). From a negative point of view, reputational ratings such as Cartter and Roose-Andersen are criticized because they are basically only peer ratings that reflect a program's size. Departmental and university reputation may be coalesced, for good or bad, especially since the "reputation" of a university has been shown to be stable over time (Clark 1976, pp. 85-89; for an extended critique see Dolan 1976). While the reputational rating format prevails, there has been one major attempt to broaden the assessment of graduate program quality.

An Alternative Approach to the Assessment of Graduate Program Quality

Clark, Hartnett, and Baird (1976) report the results of a two-year study, cosponsored by Council of Graduate Schools in the United

States and National Science Foundation, designed to assemble and test different criteria for the assessment of graduate program quality in the U.S. (p. ix). By questioning graduate school deans, Clark assembled some 300 indicators of program quality that were narrowed to 30. Students, alumni, faculty members, and departmental chairmen were then surveyed to ascertain whether the 30 program quality indicators could be used as a reliable measure to improve judgments about graduate programs (pp. 11.1-11.8). The three investigators were attempting to overcome what they saw as a shortcoming in previous rating attempts—the absorption of those attempts with measures of graduate program quality that reflected the preparation of research scholar mission exclusively. However, attempts to introduce novel measures of quality better related to alternative purposes were stymied. "We were not prepared for the consistently strong and pervasive influence of the research and scholarship model at the doctoral level, and the correspondingly slight emphasis given to preparing teachers and practitioners" (p. 11.8).

Because their respondents were committed to the research-scholar ideal for graduate school, most of the indicators of quality explored by Clark, Hartnett, and Baird reflected that objective. A series of indicators of program quality were identified within that limitation. For example, one method to evaluate quality of faculty is peer ratings. This method was criticized for use as a sole rating of faculty quality since other indicators of faculty quality that might be used include students ratings, publications, and other research activity (p. 11.11). The quality of *students* in a graduate program can be assessed by study of students' undergraduate grades and faculty ratings of students. The investigators noted that Graduate Record Examination scores were not readily available and therefore of limited utility. Generally, the available measures of student quality only assessed student quality at entry. Measures of student quality upon degree completion, such as a program-to-program comparison of dissertations, were rejected because of constraints such as costs (pp. 11.12-11.13). The *resources* available to a graduate program can be measured directly or indirectly through faculty opinion. One quality seldom measured is that of *environment*. This is comprised of the *learning environment* (as reported by students); faculty concern for students (as reported by students); and the nature of the work environment experienced by faculty members. Methods are also available to ascertain the quality of *academic offerings*, including student assessment of overall experience, of curricula, of assistantships, and alumni ratings of their dissertation experiences. Other measures can be de-

vised that relate to alumni performance, an element for which investigators had difficulty securing data (pp. 11.14-11.18). These measures of quality as reflected in alumni performance might include alumni ratings of the quality of their training with respect to their careers, figures on the percentage of alumni in jobs highly related to their training, publication rates, and scholarly presentations.

Clark, Hartnett, and Baird were satisfied that a greater variety of information about graduate program quality can be gathered than is the custom. Furthermore, they suggest that it is possible to assemble profiles of programs and departments if sufficient numbers of institutions were to cooperate. Using such an approach, faculty at institution X could be compared with faculty at institution Y as measured by such elements as students ratings or number of publications. In addition, the profile would compare the two institutions on aspects such as quality of resources and quality of environment (pp. 11.18-11.22).

While discussions of the assessment of quality in graduate programs do not represent a massive segment of the literature on graduate education, reflective discussions about quality assessment are appearing. Furthermore, the topic of quality assessment appears in discussion of the changing purposes of graduate education, new institutions, the new clienteles, and in particular in discussions pertaining to a new awareness of student purposes and interests in graduate education. Whereas, as Clark, Hartnett, and Baird discovered, most thinking about graduate education focuses on it as locus for production of research scholars, differing conceptions are receiving attention.

New Purposes in Graduate Education

The National Board on Graduate Education (1975) in reviewing the current trends in graduate education (declining demand for traditionally-trained Ph.D.'s, declining research expenditures, changing demography, and an awareness of new clientele), concludes that "what will be needed are expanded opportunities for 'nontraditional' forms of graduate education, serving 'nontraditional' graduate students" (p. 49). With the likelihood high that few major new government programs will be created to support graduate education, each university must take the initiative to determine those programs it can offer that will serve new needs. If it chooses to remain in competition to be a distinguished traditional program, it must allocate the necessary resources. This process of determining a purpose may lead a university to conclude that its future in graduate education lies with providing professionally oriented master's and doctorate programs designed to fill local needs (p. 50). The Board recommends that universities require every graduate program to be justified. If a program allegedly meets a local need, that need should be clearly documented. If a program is producing research scholars to compete in the national market for scholars, is there evidence of success, such as effective placement and distinguished publication records? "Every graduate program worth maintaining should be justified clearly and unambiguously in terms of its particular purposes served, and these should not be vague and rhetorical but highly specific and backed up by hard data" (p. 50).

To find the focus of their graduate programs universities should begin with a critical internal evaluation of their *current* graduate programs. This evaluation would be followed by a realistic plan for the university's future involvement with graduate education. However, in the Board's view, developing universities should devote their energies to the creation of graduate programs that respond to the needs of new clientele rather than attempting to compete with established graduate programs. Using this approach, developing universities can specialize in the programs they offer and in the clientele they serve (pp. 56-58). The specification of purpose will strengthen a university's programs and facilitate choice by students. The pay-off for a university's determination of purpose in its graduate programs may well be survival. The Board expects some graduate programs to be

phased out. Those that remain will qualify through at least one of three conditions: excellent programs will survive; programs with an applied focus will survive; many programs that strive to serve new needs will survive. In summary, programs that are distinctive will make it; those that are not, will not (p. 60).

Although the realities such as those behind the Board's recommendations are not questioned, Riesman (1976) suggests that one frequent overreaction—a call for graduate training to produce college teachers rather than research scholars—should be countered by the scrutiny of individual programs. In his judgment a vast need remains for the production of graduate scholars who can teach high caliber students at undergraduate colleges to specialize *and* to be broader individuals. He suggests that a false dichotomy of objectives, or teaching versus research, may create a new provincialism in academia, In his view, recognition and reward for research by faculty members are needed more than ever. Although innovative teaching is as important and demanding as research, ordinary teaching, in Riesman's view, is not as demanding as is ordinary research. Good research may stimulate colleagues and students as well as good teaching. To stress the preparation of teachers over researchers may be shortsighted. Riesman also suggests that it may be necessary to maintain a "critical mass" of resources if graduate programs are to remain producers of excellence in scholarship. For this reason, it may be necessary to continue recognizing distinctive students through financial rewards such as fellowships. Recognizing that graduate students will need more flexibility upon graduation than they have had in the past, Riesman suggests that perhaps it would be wise for them to specialize in more than one area, to stretch themselves. "Granting that it takes an extra measure of energy and talent to go beyond a single specialty, I believe that general education is often more necessary at the level of graduate school than at the undergraduate level" (Riesman 1976, p. 16). What Riesman arrives at in conclusion, however, is that experimentation and innovation are needed in graduate education if graduate students are to respond to the challenge of the future. Thus, seeking just one new purpose for graduate education—preparing individuals who can teach a discipline in colleges—may not work. But Riesman would seem to concur with the National Board that seeking new purposes is important for the future development of graduate education.

Alternative Programs Within Traditional Graduate Education

Although the most dramatic expression of new purpose for graduate education is shown through new institutions, suggestions have been

made to alter aspects of what is available to students within traditional graduate education. For example, The National Board on Graduate Education (1975, p. 59) urges institutions to reinvigorate the master's degree. According to the Board, many institutions stopped awarding M.A.'s during the sixties and concentrated on doctoral study. Given the present pressures on doctoral study, they suggest this is the appropriate time to reconsider the value and purpose of the master's degree, perhaps to try out innovations in graduate study at the master's level (see also Mayville 1973).

A perennial suggestion to improve doctoral programs is the Doctor of Arts approach, which is designed to train practitioners rather than research scholars. Koenker's sixth survey of member institutions of the Council of Graduate Schools, mailed in November 1975, determined that the number of institutions offering, planning to offer, or considering offering a D.A. degree program increased from 49 in January 1975 to 62. Furthermore, a large number of institutions offer what they consider to be a similar program, but under the guise of a traditional degree. As is characteristic of the innovative degree programs generally, D.A. students are older and have experience, thereby providing a different clientele for the degree. Koenker concludes that institutions offering the D.A. degree are becoming more numerous and observes that there are good placement opportunities and wide application for use of the degree.

Alternative Graduate Institutions

Another method employed to express different purposes for graduate education is to create a graduate institution or program that is radically different from the traditional graduate program in a university format. A number of nontraditional graduate programs and institutions have been created.

The *Innovative Graduate Programs Directory* (1975) lists informa- on 140 degree programs categorized by their organizers as "innovative." According to the directory, innovative graduate programs tend to share certain characteristics:

(1) significant student participation in degree program planning;
(2) abolition of formal residency requirements;
(3) accreditation of prior learning experiences;
(4) wider use of internships, work-study, practicums, etc.;
(5) emphasis on independent, individualized study;
(6) commitment to interdisciplinary/interdepartmental programs;
(7) generally liberalized grading and degree requirements;
(8) a noticeable shift from studies in traditional academic disciplines to more career-oriented, public service type programs [1].

The exact relationship to be maintained between traditional and nontraditional or innovative graduate institutions remains to be worked out. Jacobson (1976), summarizing the mood of graduate deans at their 16th annual meeting, observes that "graduate deans are eager to impose minimum standards on the rapidly growing movement toward external degrees and other nontraditional forms of graduate study" (p. 1). The deans see value in nontraditional programs but are concerned with issues of quality, such as the absence of uniform standards for the programs. This is one consequence of a shift from a distinct program purpose to multiple purposes expressed through programs and institutions that attempt to serve distinctive needs. Jacobson also notes that the deans are perturbed by the marketing of nontraditional programs across state boundaries (p. 6), a circumstance that increases competition for graduate programs.

The most dramatic method used to serve different purposes in graduate education is to form a new institution. Several such institutions have been created. For example, The Union Graduate School (Cheek 1976) is sponsored by the Union for Experimenting Colleges and Universities, established in 1964. The Graduate School was begun in 1971 to offer diverse and alternative opportunities for students to pursue the Ph.D. degree in a highly individualized, noncampus-based way. The degree program at Union offers self-directed, independent study drawing on learning resources wherever they may be available (pp. 1-2). The Union Graduate School (UGS) expresses certain values through its organization: it emphasizes learner-centered education and self-directed learning; there is an absence of prescription. New ways of knowning (such as cross-disciplinary approaches to a problem) are encouraged. Personal growth—a real change or "value added" ascribed to the individual—is expected from the degree-seeking experience. The concept of "Co-Learners," the belief that students, faculty, and administrators learn from each other in true graduate education, is practiced. The UGS program is not regarded as a redefinition of traditional Ph.D. programs; rather it is seen as an alternative path to the Ph.D. (pp. 6-8). Students who are successful follow a series of nine steps, which includes the formation of a committee that counsels, advises, and collaborates with the student, who himself works out a learning plan and degree objectives. An internship is required and, as in a traditional program, one of the last steps in degree completion is the presentation of a project representing excellence that reflects the individual's learning objectives (pp. 3-5). Students who pursue a doctorate through UGS are older, midcareer individuals, highly motivated, and working from an understanding of their own goals. At the

time Cheek wrote, there were 650 doctoral candidates in the program. Approximately 6,000 individuals inquire each year about UGS, many of them working in education-related endeavors (p. 9-11).

Another institution formed to offer distinctive nontraditional graduate programs is Nova University. Martorana (1975) describes one of many programs, the community college leadership program, which is designed to respond to the special needs of community college instructors throughout the nation (p. 21). The Nova program, which lasts three years, leads to an Ed.D. degree. Clusters of students are organized regionally under the supervision of a cluster administrator. Within the cluster organization students work on learning modules. After completing a module each student does a practicum or applied research project of value to his employing institution. During the third year, the student works on an applied research project also expected to be directly useful to his employer. Each summer matriculated students attend an institute for intensive study.

In Martorana's judgment, the method employed at Nova is more controversial than is the purpose. It is a variation on the open university format and permits a students to work on his degree without leaving home—the usual lectures, etc. are brought to the student through the clusters (pp. 22-27). Martorana notes that Nova fulfills a distinctive purpose: its students are established practitioners, they are pursuing a degree for professional advancement at their institution, and they can directly apply their professional experiences to their learning experiences. The cluster organization permits students to benefit from national lecturers who are brought to them. However, Martorana also notes that the resources available locally to aid students, such as libraries, may be quite limited; furthermore, he observes that there may be very little "protege-mentor" relationship between learners and instructors. Nor does the cluster organization assure continuity between sessions for the students (pp. 28-31). Although Martorana recognizes the shortcoming of this degree program by traditional standards, he also observes that the degree program offered by Nova is offered to a very specific clientele. However, he is pessimistic about the future of such programs. He believes traditional graduate institutions will begin to use their weight to stifle innovative degree programs such as Nova's, even those that do serve very specific needs (p. 35).

Another institution with an experimental program and distinctive clientele is Walden University, a proprietary institution in Naples, Florida. Between 1971 and 1974, 616 doctoral candidates were admitted to Walden (Graham 1976, p. 474). Graham suggests that the

major attraction in the Walden program is open admissions. Nonetheless, the Walden program also attracts a different clientele from the one normally associated with a typical graduate school. According to Graham's data, the typical candidate for a degree at Walden (1971-1974) was a 41-year-old male public school administrator or college faculty member with a master's degree and 65 hours of post-baccalaureate study.

Summary

If the reality of declining support and dwindling numbers of students is to be met by the graduate education enterprise, one approach may be to develop new purposes for graduate education. A new sense of purpose developed by graduate institutions themselves can serve external and internal purposes: externally, programs can be identified that serve specific purposes; internally, institutions can allocate resources to enhance the likelihood that these new programs will survive. Distinctiveness is the underlying quality to be achieved. A variety of methods have been suggested to express new conceptions of purpose for graduate education, including upgrading the master's degree and concentration on programs to train practitioners. One major expression of new purpose may be the creation of new graduate institutions. These institutions emphasize choice and planning by students, who are often a special lot themselves, being mature professionals. Although some nontraditional graduate institutions may face increasing opposition, the general direction seems to be that institutions seeking vitality will clarify and pursue the purpose they choose from the array of traditional and novel purposes for graduate education.

The Student Experience in Graduate Study

Since the goal of graduate education is to turn out people who are able, much hinges on their development during graduate study. Despite this truism, little systemic inquiry has been devoted to the experience of graduate students during graduate study, and little has been done to improve their lot. Hartnett and Katz (1976) report that nine problems have persisted over the years: (1) Inadequate information is provided students in advance of their work in graduate school. (2) Students arrive expecting to join a community of scholars; instead, they find themselves in isolated work pursuing narrow specialization. (3) Students arrive expecting lively interaction; they find competition. (4) Students expect their professors to guide them; rather, they find demeaning attitudes expressed by the professoriate. (5) Instead of intellectually engaging inquiry, students find tedious assignments reflecting the special interests of their professors. (6) Many graduate students are interested in teaching: this interest is not supported. (7) When they enter graduate school following four years of college students expect to be treated as adults; rather, they are often treated as freshmen. (8) Students seek growth as social beings but find pressure and overwork. (9) Students find little sense of joy or creativity in what they have to do; instead, they pursue grim busywork (Harnett and Katz 1976, pp. 4-5). During the period of expansion in graduate education, grantsmanship and federal research money decreased the opportunity and expectation that faculty members would teach or have time for contact with students. But at least, job opportunities were available for students who survived. Now, graduate students are more concerned than ever whether their experience will lead to better life and employment; yet little has been done by graduate departments generally to respond to the decline in job availability. These persistent dissatisfactions and current problems suggest a need for more study regarding the nature of the students' experience in graduate study.

The Graduate School Environment

One important element in the life of the graduate student is the environment he finds in the graduate school and the department he chooses. In comparison with high school students selecting a college, college students choosing graduate school are more aware of the dif-

ferences that are possible in learning environments. Furthermore, for a graduate student, graduate school is a workplace. Nevertheless, students have to provide far more information about themselves than graduate departments choose to provide prospective students about the department. In fact, it is questionable whether graduate departments know much about the environment they provide. For this reason, Hartnett (1976) suggests that departments would be advised to assay student opinion of the department periodically (pp. 51-54).

Based on surveys and interviews with thousands of graduate students, Harnett has determined five major elements in graduate student evaluation of the environment offered by graduate departments. The single most important dimension of the departmental environment for graduate students is the quality of their relationships with faculty members (pp. 59-67). Students expect faculty members to be accessible. However, the actual lack of accessibility frequently increases competition among students: they are competing for the attention of faculty members. Also important is the way faculty members relate to students; there is continual hope by students that things will loosen up. A second major element is the sense of community. According to Hartnett, few graduate students are prepared for the isolation they find; graduate students find their experience to be narrowing, rather than broadening (p. 71).

A third environmental element regarded by graduate students as important is the relative importance faculty members attach to good teaching. The behavioral differences that graduate students perceive may be relatively minor, but they reflect differences in attitudes toward students and degrees of acceptance of responsibility for teaching (p. 76). Another major concern of students is with the fairness and accuracy of faculty evaluation of their performance. There may or may not be adequate feedback on student performance. Graduate students also express distaste for the use of competition to evaluate them (pp. 79-80). Finally, Hartnett found that graduate students are concerned about the extent to which the curriculum can be tailored to their interests and needs and the degree to which interdisciplinary study is possible. For graduate students these major elements are at the core of their experience. Yet, as Harnett observes, the elements important to graduate students may not be regarded by faculty members as very important (p. 83).

Graduate Study as a Developmental Experience

Concern is expressed for the environments graduate students experience in graduate study because of new recognition that graduate

study may be a developmental experience itself. Riesman (1976) asserts that general education is more necessary at the graduate level than at the undergraduate level. "General education" suggests an experience that is personally challenging and developmental. Toombs (1974), in a paper entitled "Graduate Study as Education," also suggests that closer attention should be given to the true focus of graduate education, namely, the development of intellect and the cultivation of rational ability as an instrument to conduct inquiry or to practice. Of course, this development takes place against a background of disciplinary knowledge and "bounded situations." But, the student develops:

> In the first engagements he or she percieves only the gross features and, excited by the points that coincide with his ideas, takes them in uncritically. Repeated participation brings skepticism, critical review, experimentation, strategies for exploring the tentative outcomes. The guiding force here is the immediate state of each individual's development. This internal force rather than external guidance gives selective perception (p.3).

Finally, advanced students forge on beyond the perception of the faculty who have taught them. The manner and values of inquiry in a specific discipline are the residue of socialization that in Toombs' judgment should be the outcome of successful graduate training.

In Katz's view (1976), the processes and condition that lead to the development of the mind of graduate or professional students have not been properly studied (p. 107). Yet certain levels and stages may be perceived. Graduate study is an intense socializing experience that can lead to mastery and self-confidence as well as a narrowing of perception and outlook (p. 109). One important component in the process is the relationship between authority figures—the professor—and cognitive development. In fact, a new style of professor may be needed, one that is personal and guiding, but not requiring infantile submission (pp. 110-111). Katz suggests that seven conditions are necessary for the proper development of the mind of graduate students. First, there must be attention and recognition from professors. This should be accompanied by the exchange of ideas with fellow students and with professors. Steps must be provided that will encourage the capacity of graduate students to work with others. A variety of techniques should be used to cultivate the imagination, which would include exposure to other disciplines, exposure to practical applications of knowledge, and exposure to artistic achievements. Some attempt should be made to see that reasonable harmony reigns between student curiosity and the sequence of learning that is required. A broad

knowledge base should be established. Finally, students should be provided economic security (pp. 120-121). These conditions recognize that the most productive graduate work will be a combination of grind and creativity, which flows from a suitable atmosphere.

In addition to recognizing that graduate students are involved in a developmental education that should broaden them as individuals and sharpen their abilities as professionals, part of the new concern for the student experience in graduate study is a more candid recognition of the vocational purpose held by students and the concomitant frustration they may have when vocational purpose is not realized. For example, Lozoff (1976) discusses the role that graduate departments can have in helping a student further a sense of professional and personal identity. However, to do this, the department must acknowledge the value in clarifying occupational goals and developing professional identity; it must further good interpersonal relationships; and it must promote a sense of autonomy within graduate students as students (p. 158). Although attention is increasingly directed to the plight of graduate students in finding jobs, Lozoff points out the need to regard the search for professional identity and occupational choice as part of the developmental student experience in graduate study.

The Significance of Paying for It All

Another facet of the student experience in graduate study is declining financial support. It is increasingly difficult for students to pay for graduate study, and this condition may dramatically alter graduate study as we know it today.

One direct consequence of declining federal support is the loss of fellowship and traineeship monies. Graduate student self-support has increased, including greater borrowing. Little is known of the long-term consequences of this trend (National Board of Graduate Education 1975, pp. 12-13). A direct relationship can be drawn between labor market projections and declining federal support for graduate students: shortages in manpower prompted federal aid; surpluses are prompting the withdrawal of aid (p. 37). Since need-based aid has not been a major form of assistance at the graduate level, improvement in federal aid to graduate students may have to await the next graduate manpower shortage. Assistantships are also declining. Also, the use of graduate assistants by investigators who have research grants is falling off, since more use is being made of post-doctoral research associates (p. 38). The consequence of this set of conditions appears to be the continued rise in self-support by graduate students.

In the prognostications of the National Board, a chain of events is related that indicates "the increased private costs borne by graduate students may do more to alter the nature of graduate education than any other force" (p. 39). The Board believes a contraction of full-time graduate work will occur because of decreasing student aid. This will be accompanied by an increase in part-time enrollment as students combine work and study. Students may limit their graduate work to a master's degree that is primarily vocational. For those students who continue graduate work, their studies will be considered an investment, since reduction in aid will force them to borrow. When graduate students look at their education strictly as an investment, they may well demand changes that will result in very different course offerings, degree requirements, scheduling, etc. than are in effect now.

New Role for the States in Graduate Study

Much of the growth and status of graduate education during the sixties can be attributed to the flow of money from the Federal Government into the graduate enterprise. This flow has decreased considerably in the seventies. By fiscal necessity, the role of the states in influencing graduate education has increased. State concerns with both public and private graduate education focus on accountability, the costs of graduate study, program duplication, and the need for program evaluation. In some states, graduate programs have been eliminated because of the low number of degrees awarded, and ceilings being placed on the creation of new graduate programs. Despite this active concern with regulating and administering graduate education, a steadily declining proportion of state funds has gone to graduate education in comparison with funds going to four-year and two-year institutions (National Board on Graduate Education 1975, p. 18). This raises the fear that the states will use too blunt an instrument to measure the subtle purposes of graduate education. In the Board's view, the proper state role is to plan, to coordinate, and to develop the diversification of graduate education efforts within a state, supporting high quality graduate programs, even those located in private institutions (pp. 55-56).

Defining and Accepting the State Role

The concern of the National Board is shared by the Task Force on Graduate Education of the Education Commission of the States. The Task Force, funded in 1973 and chaired by Governor Winfield Dunn, deliberated for 16 months on the proper relation of the states to graduate education. The group was established because state officials noted the changing patterns of federal funding, a growing surplus of educated manpower, and the continued expansion and duplication of graduate programs. Costs to states of graduate programs were rising and aid available to students was decreasing. Questions were being raised about the "ownership" of graduate education—Is it a state or a national resource? (p. 10). Another major philosophic question facing the states is whether resources should go only to support high-quality programs that appeal to or accept only high-quality students, or should resources be spread to institutions and programs regardless of quality ratings?

The Task Force assigns to the states the primary responsibility for providing and supporting graduate education. The state responsibility for graduate education extends also to private institutions since the states have encouraged them through tax exemptions. But once states accept this responsibility, an obstacle stands between financial need and state support for graduate education, sometimes known as "the credibility gap." In view of the cost of graduate education, governors, legislators, and citizens want to know how much graduate education should be paid for, to whom, and why. If shortages of job opportunities exist for graduate trained manpower, why should the state support those programs? The central issue in the credibility gap is absence of adequate data and statewide indicators as to what graduate programs cost and what benefits they create (p. 14).

Naturally, the Task Force does not see the states accepting total responsibility for graduate education; some form of state-federal support must be assumed. In fact, the Task Force recommends a pluralistic model. The states should assume the basic costs for public institutions. The states and the universities should be responsible for the efficient use of resources. The federal role should be to support research, aid graduate students, and pay for programs having primarily a national impact (Education Commission of the States 1975, pp. 1-2). Foundations should support graduate education by promoting innovation and sharing the cost of basic research. Business and industry should support research that benefits them directly.

Given the role suggested by the Task Force, it is incumbent on each state to plan more, eliminate duplication and competition among programs, and to consider availability of opportunities and the needs for programs arising from manpower needs. This would require each graduate program to have an identifiable purpose that makes it distinct. State officials and administrators then might make program decisions that show an awareness of the multitude of objectives graduate programs might accomplish. It will also be necessary for those state officials responsible for the planning and decisionmaking of graduate education in a state to improve their knowledge about what programs exist in other states. Moreover, information, current information on enrollments, and new means to assess the benefits of graduate education as well as specific graduate programs will be needed.

Another possible direction states can take in assuming support for graduate education is to decrease the barriers and resistance to regional and intrastate cooperation. Although progress has been made toward common market approaches, concerns over local pride in grad-

uate programs, inequality in level of support, and constitutional questions about support of out-of-state programs with state money continue to impede development of major cooperative graduate programs between states (p. 15).

Planning, Evaluating, and Coordinating Graduate Education

Planning is one major role assigned to the states for graduate education. The question is *Who plans for what?* Once states have accepted responsibility for supporting graduate education, they must accept responsibility for planning or making choices. Any planning done by a state must take into consideration the manpower needs of the state and the resources to be distributed. These factors must then be looked at in the context of availability of trained manpower in those fields from available resources and the demand for trained manpower in various fields nationally. Furthermore, within many states graduate education is produced in private and state-funded institutions; their respective contributions must be blended (p. 17).

One of the more dramatic forms of state-accepted responsibility can be seen in those instances where states review graduate programs and terminate them. For example, in late 1976 the Louisiana Board of Regents ordered seven public universities to terminate a total of 18 doctoral programs (Winkler 1976, p. 9). According to Winkler approximately 26 graduate programs have been terminated in New York State since 1973. In New York, the review and termination power of the Commissioner of Education has been upheld by a state court, although the Trustees of the State University of New York are appealing the decision (Winkler 1977, p. 1).

Underlying state acceptance of responsibility for program review and termination are questions of standards (Educational Commission of the States 1975). Whose standards will be used when programs are reviewed? What standards? Who will measure the compliance with standards? Will peer-ratings or reputational ratings be utilized? So far those states most active in program review have used one of two approaches. One is to establish high qualitative standards and expect to abolish those programs that do not meet them, which requires measures of quality that may be elusive. The second approach is to establish productivity standards such as "ten or more doctorates per year." This raises the possibility that unprepared students will be rushed through their degree programs (p. 19). At the other end of the quality evaluation issue are those institutions whose programs are national and international in scope. Procedures and standards may be necessary that will permit the state to acknowledge the special role of

such institutions, waiving certain productivity requirements if they apply (p. 20).

Another consideration that must be weighted before graduate programs are terminated by a state-level evaluation is the economic impact of closing programs. Scaff and Staley (1972) describe a model for calculating the impact of closing a graduate program in light of its probable effect on tax revenues, state income tax, etc. Using "comparative static analysis," a method by which one variable may be changed and the results of that change traced, the effects on a state's economy of closing a program can be studied. Losses can be shown in federal support money, tuition and fees, student expenditures for food and housing, and in depressed local economy. The summation of these amounts may reveal a loss much greater than is the saving to a state by closing a program (pp. 308-310).

Current practice in state program evaluation and planning of graduate programs is in flux. A survey reported by the ECS Task Force (Educational Commission of the States 1975) shows that great opportunity exists for improvement in the extent to which graduate programs are included in state and regional planning efforts. For example, of the 38 state agencies responsible for higher education planning, nine have criteria for the elimination of proposed programs, eight have cost-of-instruction analyses for graduate programs, and nineteen states participate in interstate cooperative education programs. It is evident that much improvement could be made in basic state efforts to plan for and evaluate graduate education, as well as to use regional resources in graduate education available through regional compact arrangements.

The decline in federal support for graduate education has left open the door for state support, responsibility, and coordination. A major question is whether states will use the opportunity to improve planning, coordination, and cooperation with graduate education, thereby satisfying more needs with greater efficiency, or if state responsibility will only mean fewer graduate programs. The criteria employed by individual states will be crucial as they make their decisions on graduate education.

The State of Graduate Study: Some Conclusions

A sense of fairness dictates that any review of the present state of graduate study in the U.S. include recognition of the growth and vigor of it during the sixties. In that period federal money and growing undergraduate and graduate enrollment buoyed the enterprise to heights fondly remembered during the seventies. Furthermore, observations about graduate study must accommodate its complexity. Graduate study is interrelated with the economy, federal priorities, technological advance, the nature of advanced study, the health of undergraduate education, and, above all, the character and number of individuals moving into graduate study from undergraduate colleges and university divisions. Viewing graduate study from a broad perspective enables one to see it as less at the brink of inevitable decline and more on the threshold of internal change.

Perhaps the major threat facing graduate education is the same decline in prospective numbers of students of traditional age that is gradually making itself known to administrators of undergraduate institutions. Falling numbers of undergraduates means proportionately fewer numbers of graduate students and declining consumption of one of the products of graduate study (graduate degree holders who seek to teach undergraduates). The very processes of graduate education may have to be modified to the extent graduate students are involved in the instruction of undergraduate students.

Another reality facing graduate education is that the Ph.D. who seeks a faculty position at the end of his traditional period of graduate study will be against ever increasing odds, unless there is a sharp drop in the number of students entering graduate study and competing with him. Furthermore, the absence of opportunity for new Ph.D.'s means that present faculty will age *in situ*, raising speculation that the creation of new knowledge in university settings may diminish. The human problem facing graduate study—what to do with those Ph.D.'s—may be the most explosive threat. Dissatisfied doctorate recipients and tales of dissatisfied doctorates might accelerate the ongoing questioning of the sociological and economic value of graduate education.

On the plus side, the state of graduate study is slowly accommodating new inquiry into the role and participation of minority group members and women students, slowly accepting the idea that low

ratios of participation by these groups may not reflect true choice on their behalf but be the effect of channeled and limited attitudes of others. The traditional low participation rate of women and minorities in graduate education at the doctoral level can be interpreted as an immense opportunity for progress. Traditional participation of women and minority students in low prestige institutions and fields may also change. However, two ironies are apparent: (1) the concern for women and minority group students comes at a time when the state of graduate study is under fire and the economic benefits of graduate education less certain; (2) despite the special role the black graduate school apparently has performed, opportunities for black students in "white" graduate schools and reorganization pressures originating with civil rights legislation and court decisions raise questions about the long-term future of those institutions.

Although no more than one or two major studies of quality assessment in graduate education have been reported, a new perception of what quality assessment should be in graduate education appears to be on the horizon. This may be related to the expression of new purposes. Quality assessment has centered on graduate education as the production of discipline-oriented scholars. New degree programs, new institutions, new clientele, new occupational awareness, all point to different purposes for graduate education in our culture. These new purposes range from the straightforward preparation of teachers and administrators for community colleges to some form of deeper general study—an acknowledgment of the developmental purpose of graduate study for individuals. Despite the current preeminence of quality assessment based on the reputation of centers of graduate study as producers of new knowledge and scholars, future assessment will likely have to acknowledge new institutional purposes. This development may be accelerated when graduate students, particularly those who come to graduate study after a few years of work life or as part-time students, realize that they are paying for their graduate study in time and money and can demand what they want. New purposes and new measures of quality may appear rapidly.

Since the Federal Government's role as banker for graduate study has diminished, perception of the state role to fund and regulate (including planning and evaluating) has grown. In many cases state authority over graduate education extends to graduate education at private institutions. Therefore, in some respect, the course of graduate study may be determined by the stance assumed by various states as they close some graduate programs and open others. State officials who decide the fate of graduate programs and institutions will face

most of the issues already described. To the extent graduate education is preparation of trained manpower for specific social needs, shall degree programs in the humanities and social sciences be terminated? What if numbers of black students and women begin to enroll in hard-science programs where research money and training support funds may be declining because of priorities supporting applied research? Can we permit external degree doctorate programs within our state borders to train students who want to be community college administrators? Shall we terminate programs that produce superb teachers but only acceptable researchers? Shall we base our decisions to retain programs on traditional measures of quality like departmental reputation and numbers of doctorates produced?

The present state of graduate study does not support an optimistic forecast for *quantitative* growth in the future. But positive qualitative change may be quite likely as the graduate enterprise identifies and pursues new purposes.

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